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Subject: Executed MOU

Date: Wed, 27 Nov 2024 17:58:54 -0500

Importance: Normal

Attachments: MOU_UM_and_LANL_11.26.24.pdf

MEDC Team.

Please find the attached executed MOU.

Thanks, much...and have a great Thanksgiving!

Drew

--

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Memorandum of Understanding
Between
Los Alamos National Laboratory
And
The Regents of The University of Michigan

Subject:

Transformative Collaboration in Computational Science, Artificial Intelligence, Engineering, Materials and Physics: Advancing National Security, Scientific Progress, and Global Sustainability

This Memorandum of Understanding (MOU) describes certain understandings between Los Alamos National Laboratory (LANL), which is operated by Triad National Security, LLC (Triad), a Delaware Limited Liability Company, for the Department of Energy, National Nuclear Security Administration (DOE/NNSA) under Contract No. 89233218CNA000001; and The Regents of the University of Michigan (UM) hereinafter referred to as the "Participants".

Now, therefore, it is hereby agreed as follows:

1. Background, Purpose, and Collaboration Scope

LANL executes work in support of all DOE/NNSA missions as a federally funded research and development center, which includes work under the following areas: national security, science, energy, and environmental management. A critical underpinning for achieving these missions is robust high-performance computing ("HPC") capability, along with the associated technical, scientific, and engineering computational expertise required to address increasingly complex problems and computational challenges. LANL seeks to collaborate with a university partner that is capable of advancing its national security and scientific missions in Computational Science, Artificial Intelligence, Engineering, Materials and Physics.

The University of Michigan has demonstrated knowledge and expertise in computational science, as evidenced by past and present collaborations with LANL, recent experience in developing joint research and development facilities for supporting university and industry collaborations that includes a UM/Ford Robotics Research Facility, and a pool of knowledgeable research personnel in the areas critical to LANL's work. The University of Michigan seeks to expand its existing work and computational capabilities to support DOE/NNSA's mission.

The purpose of this collaboration is to expand upon current areas where UM and LANL jointly work together to leverage each organization's expertise and efforts in addressing the research and expertise required to support the missions of both institutions. The purpose of this MOU is to

identify mutual institutional goals, define specific areas of collaboration, and establish management and collaborative frameworks that the Participants will use to achieve the goals of collaboration.

2. Authority

LANL enters this MOU pursuant to the authority granted by the LANL Prime Contract, specifically the authority to manage Simulation Codes & Computational Resources under Subsection 1.1.2, Scientific Capabilities Experiments and Tests under Subsection 1.1.4, Nuclear Materials Management under Subsection 1.1.7, and the Safeguards & Security Technology Program under Subsection 1.10 of Section J, Appendix A, Statement of Work.

UM's authority to enter this MOU is based on the constitution and laws of the State of Michigan, and the applicable bylaws and policies of the Regents of the University of Michigan.

3. Areas of Cooperation

The Participants presently intend to collaborate in the following areas, which are detailed further within this MOU:

- a. Further Research and Development (R&D) collaborations within Computational Science, Artificial Intelligence, Engineering, Materials and Physics;
- b. Mutual support of UM's Innovation Campus in Ann Arbor, Michigan; and
- c. Cooperate on efforts to jointly establish a center for high performance computing ("Center for HPC").

4. Goals of Cooperation

The Participants presently seek to establish a collaborative framework that builds upon both organizations' strengths to jointly expand their capabilities in computational science, artificial intelligence (AI), engineering, materials and physics. The Participants will conduct collaborative research and expand opportunities for each organization's personnel and students on vital initiatives. This collaboration seeks to bring together the complementary strengths of LANL and UM to address challenges of national and global significance.

Both organizations also seek to broaden and share talent between the two institutions on key projects, enriching both with diverse perspectives and expertise. The Participants' shared goal is to create stronger multidisciplinary teams capable of leading R&D efforts in both national and international arenas capable of engaging with additional partners on mutually important projects. The Participants presently believe that joint appointments for researchers and faculty between the two institutions will play a crucial role in strengthening partnerships, fostering closer collaboration, and creating more opportunities for meaningful engagement.

In support of this collaboration and in furtherance of these goals, LANL agrees to:

- a. Appoint the senior director-level employee identified in Section 7, to serve as LANL's management official for the collaborations envisioned under this MOU as the organizations work toward their mutual goals;

- b. Share responsibility with UM for the overall development and management of the broad collaboration programs envisioned under this MOU, coordination of computational and other scientific resources for scientific and national security purposes;
- c. Provide expertise, facilities, and resources necessary for collaborative R&D projects and support the establishment of an Innovation Campus, which may include a Center for HPC that meets LANL's operational, maintenance, and access requirements;
- d. Offer opportunities for university students and faculty to engage in joint research projects, internships, and collaborative initiatives; and
- e. Provide the necessary staff to support the projects identified below and mutually agreed upon by the management officials named in this MOU.

In support of this collaboration and in furtherance of these goals, UM agrees to:

- f. Appoint the senior director-level employee identified in Section 7, to serve as UM's management official for the collaborations envisioned under this MOU as the organizations work toward their mutual goals;
- g. Share responsibility with LANL for the overall development and management of the broad collaboration programs envisioned under this MOU, coordination of academic expertise, research capabilities, and student talent to the collaboration;
- h. Provide workspace and resources as may be mutually agreed to for the Innovation Campus, Center for HPC, and other collaboration activities in Michigan; which may require entering into follow on agreements for certain activities.
- i. Facilitate the integration of research activities into its academic programs; and
- j. Provide the necessary staff to support the projects identified below and mutually agreed upon by the management officials named in this MOU.

It is anticipated that the Participants will realize specific benefits from the successful implementation of the collaborations detailed under this MOU.

- k. LANL presently believes that the following benefits will result from the envisioned collaborations:
 - i. Improved institutional agility and innovation through access to the University's cutting-edge research environment, particularly in fast-evolving fields like AI;
 - ii. Optimized resources through the joint use of facilities that create new opportunities for research and accelerates the pace of innovation, allowing LANL to stay at the forefront of emerging technologies;
 - iii. Realized technological development through the exchange of knowledge and use of technology transfer mechanisms that ensure LANL benefits from the latest academic research while also contributing its expertise to the development of future academic programs;
 - iv. Creation of talent pipelines that can define and attract academic talent that aligns with its technical needs, ensuring a steady flow of well-prepared candidates for future roles;

- v. Increased access to existing and planned unique facilities that will improve collaboration between the organizations, scale research efforts, improve workforce agility, and enhance LANL's cutting-edge research.
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 - vii. Increased access to existing and planned unique facilities that will improve collaboration between the organizations, scale research efforts, improve workforce agility, and enhances UM's research capabilities.

5. Identified Areas of Collaboration

The Participants have currently identified several areas of collaboration as set out under this Section 5. These projects may be currently in progress or planned. The Participants will use the contracting and other vehicles identified under Section 6 below to implement these collaborative efforts. The director-level personnel identified in Section 7 from each organization will ensure these collaborations are adequately resourced and provide oversight and direction to guide these collaborative efforts. Additional collaborations not identified below, but within the areas of cooperation identified in Section 3 above, may be added through mutual written agreement between the Participants.

a. R&D Collaborations

The collaboration will focus on R&D in technical areas of critical mutual importance, including but not limited to the following specific projects:

- i. Artificial Intelligence: a series of R&D projects and applications in AI to innovate and advance both the theoretical understanding and practical implementations;

- ii. Co-Design of Computing Systems and Scientific Software: R&D projects to design computing architectures and software for optimization of performance and functionality for scientific research;
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- iv. Physics model development and analysis: R&D projects for innovative approaches and implementations for mathematical modeling and experiments of complex physics such as high-energy-density physics, turbulence, and complex flow;
- v. Materials, R&D projects to develop novel processing techniques, qualification of new processing techniques, the science of scale up, and application of traditional manufacturing capabilities to new materials as well as properties in extreme environments;
- vi. Verification, validation, and uncertainty quantification R&D projects for innovation in the area of assessing fidelity of computational physics and artificial intelligence simulations and quantifying uncertainties and credibility of model predictions including model trustworthiness;
- vii. HPC Systems and Facility Management: R&D projects to design, implement, and manage HPC systems and facilities to support advanced research initiatives; and
- viii. Nuclear nonproliferation and safeguards: R&D projects to advance radiation detection capabilities to detect proliferation activities and safeguard new and existing nuclear reactors.

b. Innovation Campus

LANL will support UM's development of an Innovation Campus in proximity to the University of Michigan's Ann Arbor campus. The Innovation Campus will serve as a hub for joint research activities, talent development, and innovation with the following goals:

- i. Expanding opportunities for collaboration by enabling both institutions to scale their operations in response to emerging challenges and opportunities;
- ii. Furthering access to pools of diverse talent, easing collaboration with regional partners, and providing a platform for future expansion and growth;
- iii. Enhancing mission sustainability and resilience by providing additional resources and capabilities;
- iv. Accelerating the delivery, installation, and operation of information technology infrastructure for the Innovation Campus and emerging AI program by reallocating existing space at UM, provided that LANL has a need to use such space; DOE/NNSA real estate regulatory requirements are met; and UM can provide space that meets LANL's requirements; and
- v. Gaining Operational Efficiencies by leveraging the strengths of both institutions to achieve operational efficiencies, particularly in areas like facility management,

shared resources, and administrative processes.

The Center for HPC is currently planned to be a central feature of the Innovation Campus. The Participants anticipate that the HPC platforms housed within the Center for HPC will support innovative, cutting-edge research, advance breakthrough discoveries, and fulfill LANL's mission-critical computational requirements by enabling computationally intensive research efforts as well such as AI Scientific Foundation Models. The Participants also anticipate that the Center for HPC will require the implementation of state-of-the-art technologies for secure operations, high-performance network communications, and energy-efficient power utilization. Subject to the availability of NNSA funds for the Center for HPC, LANL anticipates approximately 200 LANL jobs will be created at UM over the next 10 years. LANL and UM aspire to build a larger effort engaging industry and other DOE/NNSA labs which would increase the total number of jobs created and will work together to pursue opportunities to foster this growth. UM presently intends to seek Michigan state assistance for the construction of the Center for HPC to aid with costs of construction and initial operation.

The Parties presently intend to work together toward gaining the necessary legal and regulatory approvals, designing, securing funding, and eventually establishing a Center for HPC near UM's Ann Arbor campus. This effort may include LANL requiring the use of office space or facilities within the Innovation Campus, provided that the Participants gain the relevant approvals and enter into an agreement covering such use. Once established each partner will retain responsibility for the operations, maintenance, and support of their respective computing platforms deployed at the site. Access and management of the facility will be accomplished through a mutually negotiated access agreement or similar contracting mechanism.

6. Mechanisms of Collaboration

This MOU does not authorize work nor performance under the projects identified in Section 5, Identified Areas of Collaboration. All such activities require a separate agreement that will govern specific terms, conditions, funding, and any other contractual obligations between the Participants.

The Participants anticipate using a variety of cooperative research and development agreements (CRADAs), special partnership projects (SPPs), institutional agreements, and subcontracts as contracting vehicles to govern and fund the research collaborations identified under this MOU. The Participants will use joint appointment agreements, guest agreements, and other similar contracting vehicles to assign personnel, interns, researchers and faculty to specific collaborations at each organization's facilities. The Participants will also work to negotiate the appropriate form of agreement(s) necessary to authorize access to any existing or anticipated facilities made available through the envisioned collaborations.

7. Management, Planning, and Resourcing

- a. **Director Level Collaboration Managers:** Each Participant has designated the senior director-level employee identified below to serve as their organization's "Collaboration Manager" for the collaborations envisioned under this MOU as the Participants work toward their mutual goals. The Collaboration Managers shall serve as a central point of contact between the organizations to effectively manage each Participant's progress toward the goals set out under this MOU. Each Collaboration Manager will determine their respective organization's strategy with implementation of each of the collaborative projects, identify available resources (e.g., personnel, funding, materials, and space) for collaborative activities, form committees and management teams as necessary to assist with planning and implementation, and delegate authority to specific management personnel to oversee implementation of collaborative projects. Each Participant's Collaboration Manager will meet at least quarterly to discuss progress toward goals, statuses of in-progress collaborations, plan for upcoming collaborations, and identify any needs or risks associated with planned projects.
 - i. **LANL's Collaboration Manager:**
Charles W. Nakhleh
Associate Laboratory Director
cnakhleh@lanl.gov
505-667-0184
 - ii. **UM's Collaboration Manager:**
Steven Ceccio
Special Advisor for Strategic Initiatives,
Office of the Provost and the Chief Financial Officer
ceccio@umich.edu
734-764-7272
- b. **Additional Personnel and Resourcing:** Each Participant, in their sole discretion, will allocate commercially reasonable technical and organizational resources to further the collaborative efforts identified under this MOU. Each Participant's Collaboration Manager will be responsible for assigning the appropriate mix of management, technical, and administrative personnel necessary to successfully implement the collaboration projects and realize the goals of this MOU. These personnel will be responsible for ensuring seamless communication between sites in New Mexico and Michigan, coordinating with their counterparts at the other Participant organizations to manage and implement R&D projects in accordance with established contractual requirements, ensure that projects are adequately resourced, and reporting on the progress of collaborative projects against the Participants' goals. Additionally, each Participant will use commercially reasonable efforts to allocate collaboration workspace, secure funding, assign support personnel, and address project needs.

- c. **Disputes, Risks, and Needs:** The Participants will work together to address potential risks and needs for collaboration projects as they arise. This includes, but is not limited to potentially providing each other with mutual support in formulating any future budget, contractual, or regulatory justifications with respect to the undertakings and activities on which the Participants may decide to collaborate under this MOU. The Collaboration Managers will use their best efforts to mutually resolve any potential disputes, mitigate collaboration risk, and resolve project issues. The Participants recognize that they are subject to specific contractual, regulatory, and legal requirements that may impact the implementation plans for current and future collaborative projects.

8. General Provisions

- a. **Program Funding and Legal Obligations:**
This MOU does not obligate funds nor create any legal obligations. Binding commitments or funding for any activities discussed in this MOU must be established through a separate agreement or contract. Each Participant will adhere to existing contractual requirements and applicable laws and regulations. Each Participant is responsible for its own costs incurred in furthering the intent of this MOU unless other arrangements are made in writing such as, without limitation, subcontracts for goods/services, CRADAs, SPPs, other contractual arrangements.
- b. **Public Information Coordination:**
The Participants understand it is in their mutual interest to consult with each other prior to any advertising, news release or promotional activity related to this MOU. However, nothing in this paragraph requires the Participants to violate applicable Federal or State law. Moreover, this paragraph does not preclude providing any information regarding this MOU to the U.S. Government.
- c. **Modification, Effective Date, and Termination:**
The Participants intend that this MOU will be in effect for ten (10) years from the date of the last signature and may be extended or modified by mutual written agreement. Either Participant may terminate this MOU with at least 30 days' prior written notice to the other Participant.
- d. **Representations:**
Each Participant represents that it has full authority to enter into this MOU.
- e. **Agency:**
The Participants hereto, and their respective employees, do not intend to be the agent, employer or representative of the other, nor to have an expressed or implied right of authority to assume or create any obligation or responsibility on behalf of or in the name of the other Participant. The Participants do not intend that this MOU be construed to establish a partnership, joint venture, or other similar relationship between the Participants.

f. No Third-Party Rights:

Nothing in this MOU, express or implied, is intended to confer any rights, remedies, claims, or interests upon any third party.

g. Assignment:

This MOU will not be assigned without the consent of both Participants, except that LANL may assign its responsibilities under this MOU to a follow-on prime contractor, but only if the current prime contract between Triad and the DOE/NNSA is not renewed or extended during the life of this MOU, provided the follow-on prime contractor agrees to the terms of this MOU.

h. Safety and Security Requirements:

The following activities require prior approval through the LANL Unclassified Foreign National Access Program's (UFNAP) Foreign Visitor Tracking System (FVTS):

- i. All LANL site visits by uncleared foreign nationals including visiting scientists, engineers, professors, students, etc.;
- ii. Foreign National access to non-public non-publishable DOE/NNSA or LANL information or technology (Including off-site access or within General Access Areas);
- iii. Access to DOE Sensitive Subject or export-controlled information; and
- iv. Access to Lab networked cyber systems.

i. Issues Resolution:

Unresolved issues between project personnel should be escalated to supervisory or managerial personnel for direct communication between the Participants. Notice of such issues shall be provided to each Participant's Collaboration Manager, who shall be entitled to engage and resolve such issues at their discretion.

j. Liability:

Neither Participant shall be liable to the other for any direct, consequential, indirect, incidental, special, exemplary, punitive or enhanced damages, or any lost profits or revenues, arising out of, relating to, or in connection with the performance of, or any breach of, this MOU. This limitation of liability applies only to this MOU; separate agreements shall govern formal engagements stemming from this MOU, such as research projects and licensing agreements. The foregoing limitation shall not apply to damages or liabilities arising from third party claims, personal injury, death, or damage to any real or tangible personal property caused by a Participant's grossly negligent acts or omissions or willful misconduct.

k. Periodic Review:

The Participants will conduct annual reviews of this MOU to determine whether modifications are necessary or if discontinuation is appropriate.

9. Other Terms and Conditions

a. Export Control:

Each Participant is responsible for complying with all U.S. export control laws and

regulations. The providing Participant must notify the receiving Participant in writing before providing any export-controlled hardware, software, or technical data under this MOU and must obtain the receiving Participant's written consent prior to transfer.

b. Environment, Safety, Health, and Security:

For activities and operations at LANL, UM personnel will follow LANL's environment, safety, health, and security requirements. For activities and operations at the UM, LANL personnel will follow the UM's site-specific requirements.

10. Proprietary Information

a. Proprietary Information:

To the extent that collaboration under this MOU requires a Participant or their representatives be given access to or be furnished with confidential or proprietary business, technical, or financial information or data belonging to a Participant or other entities that is confidential or proprietary, the Participant receiving the information shall treat such information in confidence and protect such information as if it were its own, provided that it exercises at least a reasonable standard of care. The receiving Participant also agrees not to appropriate such information to its own use or to disclose such information to third parties unless specifically authorized in writing by the disclosing Participant. Notwithstanding the foregoing, Triad may disclose confidential or proprietary business, technical, financial, or any other type of information to the DOE/NNSA as required under its prime contract. Unless covered by other existing confidentiality requirements, the foregoing obligations shall not apply to:

- i. Information or data that is in the public domain at the time of receipt by a Participant;
- ii. Information or data that is published or otherwise subsequently becomes part of the public domain through no fault of Participant; and
- iii. Confidential or proprietary information or data owned by a third party that has expressly authorized unlimited distribution.

Signatures

For Triad National Security, LLC:

Name: _____
Digitally signed by
THOMAS MASON
Title: Thomas Mason
(Affiliate)
Date: 2024.11.26
14:35:56 -0700
Date: _____

For the Regents of the University of Michigan:

Name: [Signature]
Title: PRESIDENT
Date: 11/25/2024

From: [Drew Smith](#)
To: [Karl Dehn \(MEDC\)](#); [Christin Armstrong \(MEDC\)](#); [Paul O'Connell \(MEDC\)](#); [Bill Clifford \(MEDC\)](#)
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- ii. Furthering access to pools of diverse talent, easing collaboration with regional partners, and providing a platform for future expansion and growth;
- iii. Enhancing mission sustainability and resilience by providing additional resources and capabilities;
- iv. Accelerating the delivery, installation, and operation of information technology infrastructure for the Innovation Campus and emerging AI program by reallocating existing space at UM, provided that LANL has a need to use such space; DOE/NNSA real estate regulatory requirements are met; and UM can provide space that meets LANL's requirements; and
- v. Gaining Operational Efficiencies by leveraging the strengths of both institutions to achieve operational efficiencies, particularly in areas like facility management,

shared resources, and administrative processes.

The Center for HPC is currently planned to be a central feature of the Innovation Campus. The Participants anticipate that the HPC platforms housed within the Center for HPC will support innovative, cutting-edge research, advance breakthrough discoveries, and fulfill LANL's mission-critical computational requirements by enabling computationally intensive research efforts as well such as AI Scientific Foundation Models. The Participants also anticipate that the Center for HPC will require the implementation of state-of-the-art technologies for secure operations, high-performance network communications, and energy-efficient power utilization. Subject to the availability of NNSA funds for the Center for HPC, LANL anticipates approximately 200 LANL jobs will be created at UM over the next 10 years. LANL and UM aspire to build a larger effort engaging industry and other DOE/NNSA labs which would increase the total number of jobs created and will work together to pursue opportunities to foster this growth. UM presently intends to seek Michigan state assistance for the construction of the Center for HPC to aid with costs of construction and initial operation.

The Parties presently intend to work together toward gaining the necessary legal and regulatory approvals, designing, securing funding, and eventually establishing a Center for HPC near UM's Ann Arbor campus. This effort may include LANL requiring the use of office space or facilities within the Innovation Campus, provided that the Participants gain the relevant approvals and enter into an agreement covering such use. Once established each partner will retain responsibility for the operations, maintenance, and support of their respective computing platforms deployed at the site. Access and management of the facility will be accomplished through a mutually negotiated access agreement or similar contracting mechanism.

6. Mechanisms of Collaboration

This MOU does not authorize work nor performance under the projects identified in Section 5, Identified Areas of Collaboration. All such activities require a separate agreement that will govern specific terms, conditions, funding, and any other contractual obligations between the Participants.

The Participants anticipate using a variety of cooperative research and development agreements (CRADAs), special partnership projects (SPPs), institutional agreements, and subcontracts as contracting vehicles to govern and fund the research collaborations identified under this MOU. The Participants will use joint appointment agreements, guest agreements, and other similar contracting vehicles to assign personnel, interns, researchers and faculty to specific collaborations at each organization's facilities. The Participants will also work to negotiate the appropriate form of agreement(s) necessary to authorize access to any existing or anticipated facilities made available through the envisioned collaborations.

7. Management, Planning, and Resourcing

- a. **Director Level Collaboration Managers:** Each Participant has designated the senior director-level employee identified below to serve as their organization's "Collaboration Manager" for the collaborations envisioned under this MOU as the Participants work toward their mutual goals. The Collaboration Managers shall serve as a central point of contact between the organizations to effectively manage each Participant's progress toward the goals set out under this MOU. Each Collaboration Manager will determine their respective organization's strategy with implementation of each of the collaborative projects, identify available resources (e.g., personnel, funding, materials, and space) for collaborative activities, form committees and management teams as necessary to assist with planning and implementation, and delegate authority to specific management personnel to oversee implementation of collaborative projects. Each Participant's Collaboration Manager will meet at least quarterly to discuss progress toward goals, statuses of in-progress collaborations, plan for upcoming collaborations, and identify any needs or risks associated with planned projects.

i. **LANL's Collaboration Manager:**

Charles W. Nakhleh

Associate Laboratory Director

cnakhleh@lanl.gov

505-667-0184

ii. **UM's Collaboration Manager:**

Steven Ceccio

Special Advisor for Strategic Initiatives,

Office of the Provost and the Chief Financial Officer

ceccio@umich.edu

734-764-7272

- b. **Additional Personnel and Resourcing:** Each Participant, in their sole discretion, will allocate commercially reasonable technical and organizational resources to further the collaborative efforts identified under this MOU. Each Participant's Collaboration Manager will be responsible for assigning the appropriate mix of management, technical, and administrative personnel necessary to successfully implement the collaboration projects and realize the goals of this MOU. These personnel will be responsible for ensuring seamless communication between sites in New Mexico and Michigan, coordinating with their counterparts at the other Participant organizations to manage and implement R&D projects in accordance with established contractual requirements, ensure that projects are adequately resourced, and reporting on the progress of collaborative projects against the Participants' goals. Additionally, each Participant will use commercially reasonable efforts to allocate collaboration workspace, secure funding, assign support personnel, and address project needs.

- c. **Disputes, Risks, and Needs:** The Participants will work together to address potential risks and needs for collaboration projects as they arise. This includes, but is not limited to potentially providing each other with mutual support in formulating any future budget, contractual, or regulatory justifications with respect to the undertakings and activities on which the Participants may decide to collaborate under this MOU. The Collaboration Managers will use their best efforts to mutually resolve any potential disputes, mitigate collaboration risk, and resolve project issues. The Participants recognize that they are subject to specific contractual, regulatory, and legal requirements that may impact the implementation plans for current and future collaborative projects.

8. General Provisions

- a. **Program Funding and Legal Obligations:**
This MOU does not obligate funds nor create any legal obligations. Binding commitments or funding for any activities discussed in this MOU must be established through a separate agreement or contract. Each Participant will adhere to existing contractual requirements and applicable laws and regulations. Each Participant is responsible for its own costs incurred in furthering the intent of this MOU unless other arrangements are made in writing such as, without limitation, subcontracts for goods/services, CRADAs, SPPs, other contractual arrangements.
- b. **Public Information Coordination:**
The Participants understand it is in their mutual interest to consult with each other prior to any advertising, news release or promotional activity related to this MOU. However, nothing in this paragraph requires the Participants to violate applicable Federal or State law. Moreover, this paragraph does not preclude providing any information regarding this MOU to the U.S. Government.
- c. **Modification, Effective Date, and Termination:**
The Participants intend that this MOU will be in effect for ten (10) years from the date of the last signature and may be extended or modified by mutual written agreement. Either Participant may terminate this MOU with at least 30 days' prior written notice to the other Participant.
- d. **Representations:**
Each Participant represents that it has full authority to enter into this MOU.
- e. **Agency:**
The Participants hereto, and their respective employees, do not intend to be the agent, employer or representative of the other, nor to have an expressed or implied right of authority to assume or create any obligation or responsibility on behalf of or in the name of the other Participant. The Participants do not intend that this MOU be construed to establish a partnership, joint venture, or other similar relationship between the Participants.

f. No Third-Party Rights:

Nothing in this MOU, express or implied, is intended to confer any rights, remedies, claims, or interests upon any third party.

g. Assignment:

This MOU will not be assigned without the consent of both Participants, except that LANL may assign its responsibilities under this MOU to a follow-on prime contractor, but only if the current prime contract between Triad and the DOE/NNSA is not renewed or extended during the life of this MOU, provided the follow-on prime contractor agrees to the terms of this MOU.

h. Safety and Security Requirements:

The following activities require prior approval through the LANL Unclassified Foreign National Access Program's (UFNAP) Foreign Visitor Tracking System (FVTS):

- i. All LANL site visits by uncleared foreign nationals including visiting scientists, engineers, professors, students, etc.;
- ii. Foreign National access to non-public non-publishable DOE/NNSA or LANL information or technology (Including off-site access or within General Access Areas);
- iii. Access to DOE Sensitive Subject or export-controlled information; and
- iv. Access to Lab networked cyber systems.

i. Issues Resolution:

Unresolved issues between project personnel should be escalated to supervisory or managerial personnel for direct communication between the Participants. Notice of such issues shall be provided to each Participant's Collaboration Manager, who shall be entitled to engage and resolve such issues at their discretion.

j. Liability:

Neither Participant shall be liable to the other for any direct, consequential, indirect, incidental, special, exemplary, punitive or enhanced damages, or any lost profits or revenues, arising out of, relating to, or in connection with the performance of, or any breach of, this MOU. This limitation of liability applies only to this MOU; separate agreements shall govern formal engagements stemming from this MOU, such as research projects and licensing agreements. The foregoing limitation shall not apply to damages or liabilities arising from third party claims, personal injury, death, or damage to any real or tangible personal property caused by a Participant's grossly negligent acts or omissions or willful misconduct.

k. Periodic Review:

The Participants will conduct annual reviews of this MOU to determine whether modifications are necessary or if discontinuation is appropriate.

9. Other Terms and Conditions

a. Export Control:

Each Participant is responsible for complying with all U.S. export control laws and

regulations. The providing Participant must notify the receiving Participant in writing before providing any export-controlled hardware, software, or technical data under this MOU and must obtain the receiving Participant's written consent prior to transfer.

b. Environment, Safety, Health, and Security:

For activities and operations at LANL, UM personnel will follow LANL's environment, safety, health, and security requirements. For activities and operations at the UM, LANL personnel will follow the UM's site-specific requirements.

10. Proprietary Information

a. Proprietary Information:

To the extent that collaboration under this MOU requires a Participant or their representatives be given access to or be furnished with confidential or proprietary business, technical, or financial information or data belonging to a Participant or other entities that is confidential or proprietary, the Participant receiving the information shall treat such information in confidence and protect such information as if it were its own, provided that it exercises at least a reasonable standard of care. The receiving Participant also agrees not to appropriate such information to its own use or to disclose such information to third parties unless specifically authorized in writing by the disclosing Participant. Notwithstanding the foregoing, Triad may disclose confidential or proprietary business, technical, financial, or any other type of information to the DOE/NNSA as required under its prime contract. Unless covered by other existing confidentiality requirements, the foregoing obligations shall not apply to:

- i. Information or data that is in the public domain at the time of receipt by a Participant;
- ii. Information or data that is published or otherwise subsequently becomes part of the public domain through no fault of Participant; and
- iii. Confidential or proprietary information or data owned by a third party that has expressly authorized unlimited distribution.

Signatures

For Triad National Security, LLC:

Name: _____ Digitally signed by
THOMAS MASON
Title: Thomas Mason (Affiliate)
Date: 2024.11.26
14:35:56 -0700

For the Regents of the University of Michigan:

Name: [Signature]
Title: PRESIDENT
Date: 11/25/2024

From: "Karl Dehn (MEDC)" <dehnk@michigan.org>

To: "Bill Clifford (MEDC)" <cliffordb1@michigan.org>

Subject: FW: Project L 2-pager

Date: Fri, 4 Oct 2024 12:54:05 +0000

Importance: Normal

Attachments: MEDC_2-pager.docx; SSRP_Application_Spreadsheet_Version.xlsx

Hi Bill. Attached are the SSRP application and the 2 pager summary from UM.

Karl Dehn

Senior Business Projects Executive

Michigan Economic Development Corporation

300 N. Washington Square | Lansing, MI 48913

Mobile: 269.967.1696

dehnk@michigan.org

This message contains information which may be confidential and privileged. Unless you are the intended recipient (or authorized to receive this message for the intended recipient), you may not use, copy, disseminate or disclose to anyone the message or any information contained in the message. If you have received the message in error, please advise the sender by reply e mail, and delete the message. Thank you very much.

From: Drew Smith <wdrews@umich.edu>

Sent: Friday, September 27, 2024 8:56 AM

To: Karl Dehn (MEDC) <dehnk@michigan.org>

Cc: Paul O'Connell (MEDC) <oconnellp2@michigan.org>; Stacy Bowerman (MEDC) <bowermans@michigan.org>; whiteheadn@michigan.gov; Kerry Ebersole (MEDC) <ebersolek3@michigan.org>; Steve Bakka (MEDC) <bakkals@michigan.org>; Christin Armstrong (MEDC) <armstrongc6@michigan.org>; Bradford Orr <orr@umich.edu>; Steven Ceccio <ceccio@umich.edu>; Chris Kolb <kolbc@umich.edu>; Mashon Allen <mashonal@umich.edu>; Genevieve Nolan <gknolan@umich.edu>

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W. Drew Smith

Assistant Vice President & Treasurer

University of Michigan

3003 S. State Street, 10090 Wolverine Tower

Ann Arbor, Michigan 48109-1283

T: 734 764-3889 email: wdrews@umich.edu

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T: 734 764-3889 email: wdrews@umich.edu

On Thu, Sep 26, 2024 at 2:41 PM Karl Dehn (MEDC) <dehnk@michigan.org> wrote:

Thanks Drew.

Adding Steve and Christin to the loop.

Karl

Karl Dehn
Senior Business Projects Executive
Michigan Economic Development Corporation
300 N. Washington Square | Lansing, MI 48913
Mobile: 269.967.1696
dehnk@michigan.org

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From: Drew Smith <wdrews@umich.edu>

Sent: Thursday, September 26, 2024 12:57 PM

To: Paul O'Connell (MEDC) <connellp2@michigan.org>; Stacy Bowerman (MEDC) <bowermans@michigan.org>; whiteheadn@michigan.gov; Kerry Ebersole (MEDC) <ebersolek3@michigan.org>; Karl Dehn (MEDC) <dehnk@michigan.org>

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Subject: Project L 2-pager

MEDC team,

Attached is the first deliverable...the 2-page summary with Sources & Uses. I'd like to reserve the right to edit this slightly as the day goes on in case we move some numbers around, but I wanted to give you all a head start. Application (excel file) coming soon.

Drew

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Summary

The University of Michigan (“U-M”) has been engaged in discussions with a federal subcontractor charged with management of a National Laboratory (“NL”) with respect to the potential to form a collaborative research relationship on and near the U-M campus. This collaborative program comes in two distinct tracts: (1) the primary relationship in which collaborative research will be conducted with NL scientists, and (2) the development of an innovation center (the “Facility”) focused on high performance computing which will be supportive of the collaborative research goals of both U-M and NL. This collaboration promises to result in transformative advancements in high-performance computing, artificial intelligence (AI), and high energy density (HED) physics as well as job creation, economic impact, and innovation leadership for the state of Michigan.

While initially a competitive process, U-M has since been selected as the indicative negotiating partner. As such, discussions with other potential partners (all research-focused universities) have been halted. This determination was made by NL based on a variety of factors including, but not limited to: (1) the caliber of research being done at the university and potential for synergies in that research between the two organizations; (2) an indicative commitment by the state of \$400 million in support of construction of the innovation center; (3) certain unique qualities offered by the state’s geography, including an expectation of long-term climate resilience, ample access to fresh water for equipment cooling operations, and available room for expansion; and (4) a reliable electrical grid.

In support of this program, U-M now seeks to make formal application of \$135MM in assistance from the Michigan Strategic Fund through the SSRP.

Location, Ownership, and Governance Structure

It is anticipated that the Facility will be located on [REDACTED] (the “Primary Site”) in Ypsilanti. The Facility will be supported by development of [REDACTED] Ypsilanti. Once completed, the substation is expected to come with a community benefit currently estimated at 1/3 of its available capacity with the remaining 2/3 of capacity used in support of the Facility. The Facility will consist of two distinct portions, with the largest a 100MW facility primarily in support of NL’s efforts and a 10MW facility primarily in support of U-M’s research efforts with expectations of its service as a collaborative space for both partners.

The Facility will be constructed on the Primary Site with ownership of both the Facility and the Primary Site owned by U-M through the construction process. Once completed, the land will be plotted, the Facility will be “condo-ized”, and a nonprofit corporation (the “Special Purpose Vehicle” or “SPV”) will be created and domiciled in Michigan. U-M will retain ownership of its portion of the land and the 10MW facility. The 100MW facility and the land on which it sits will be transferred to the SPV for long-term administration in which NL will hold a lease. The initial term of the lease is expected to be 10 years with expectations of extensions long-term.

It is expected that the SPV will be jointly controlled by both NL and U-M, with the SPV’s functions primarily focused on the administrative management of the 100MW site.

Facility Construction and Operational Costs

The total cost of the supportive parcels of land is estimated at \$3MM. Construction cost of the Facility is estimated at \$785MM, with \$685MM attributable to the 100MW facility and \$100MM attributable to the 10MW facility. Cost of equipment for the 100MW facility is estimated at \$300MM supported by federal appropriation, and cost of equipment for the 10MW site is estimated at \$117 million supported by a U-M financing. Separately, a connecting network cable is estimated at \$15MM, and the capital contribution required for the substation development is \$30MM. Estimated sources and uses of funding are presented as Exhibit A, below.

Ongoing operational costs are anticipated to be significant, with the 100MW facility's annual operating costs estimated at \$115MM and the 10MW facility's annual operating costs estimated at \$35MM. These costs are inclusive of net debt service, maintenance costs, general operating costs, utilities, and certain IT costs.

Exhibit A	<i>(in millions)</i>						
	SPV	UM	Cap Outlay	Bond	SSRP	F Approp	Total
100MW Bld	\$ 290.43	\$ 151.00			\$ 111.36	\$ 101.76	\$ 654.55
100MW Design		\$ 7.83			\$ 23.64		\$ 31.47
10MW Bld				\$ 95.45			\$ 95.45
10MW Design				\$ 3.53			\$ 3.53
Network Line	\$ 13.05	\$ 1.95					\$ 15.00
Land		\$ 3.00					\$ 3.00
10MWEquip		\$ 57.00	\$ 30.00	\$ 30.00			\$ 117.00
SubStation	\$ 30.00						\$ 30.00
Total	\$333.48	\$220.78	\$ 30.00	\$ 128.98	\$135.00	\$101.76	\$ 950.00

Construction Timeline

Design work is already underway, with \$9 million already advanced by U-M in support of a \$35 million Facility design effort (prior construction costs are inclusive of this figure). Design completion is expected by August 2025 with vertical construction beginning in early CY2026. Construction is expected to reach substantial completion by July 2029 with final completion expected by July 2030. Completion of the substation and its being placed into service is expected by July 2029.

Job Creation

Based on discussions with NL, it is estimated that over the next 10 years, the research collaboration is expected to create 800 new jobs in southeastern Michigan with average base compensation of \$200,000 per year and total compensation of \$300,000 per year attracting top talent and solidifying Michigan's position as a tech hub. The majority of these jobs will be directly associated with research and be housed near U-M's North Campus while an estimated 30 of these jobs will be directly associated with administration of and work within the Facility. While this job creation will begin immediately, it is expected that the majority will be created once the facility is placed in service in mid-CY 2029. Additionally, it is anticipated that additional jobs will be created through the gravitational pull of the Facility with respect to industries associated with classified work.



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
OFFICE OF THE GOVERNOR
LANSING

GARLIN GILCHRIST II
LT. GOVERNOR

October 31, 2023

President Santa Ono
University of Michigan
3190 Ruthven Building
1109 Geddes Avenue
Ann Arbor, Michigan 48109-1079

Dear President Ono,

The State of Michigan is pleased to provide this letter of support for the University of Michigan's (UM) proposed partnership with the Los Alamos National Laboratory (LANL).

For more than a century, Michiganders have paved the way. The state of Michigan is where technology, research, and innovation pair with a fierce work ethic and legendary entrepreneurial spirit. As the state that put the world on wheels more than 100 years ago, today Michigan's skilled workers are shaping the future – developing cutting-edge emerging technologies, supported by world-class universities providing a steady pipeline of STEM graduates and the highest concentration of engineering talent in the nation.

The proposed partnership between UM and LANL ensures that the future continues to be made in Michigan. UM's research enterprise, top-rated graduate programs, and commitment to growing innovation present the ideal location for LANL's expansion beyond the geographic border of New Mexico. In fact, LANL is one of many government and industry partners from across the nation and around the world that want to be part of what we are building in Michigan – a community of great people focused on accelerating the region's dynamic and growing research and innovation ecosystem critical to our national security and global competitiveness.

The State of Michigan eagerly supports UM's commitment to enter into a partnership with LANL to develop a mutually beneficial long-term collaboration. I am confident that Michigan's strong ecosystem of innovation will exceed all expectations. As LANL finalizes its plans to partner with UM on a high-performance computing data center, we encourage you to consider all that we can do together in Michigan.

Sincerely,

A handwritten signature in blue ink that reads "Gretchen Whitmer".

Gretchen Whitmer
Governor

From: Genevieve Nolan <gknolan@umich.edu>

To: "Paul O'Connell (MEDC)" <oconnellp2@michigan.org>

Cc: Drew Smith <wdrews@umich.edu>, "Karl Dehn (MEDC)" <dehmk@michigan.org>, "Stacy Bowerman (MEDC)" <bowermans@michigan.org>, "whiteheadn@michigan.gov" <whiteheadn@michigan.gov>, "Kerry Ebersole (MEDC)" <ebersolek3@michigan.org>, "Steve Bakkal (MEDC)" <bakkals@michigan.org>, "Christin Armstrong (MEDC)" <armstrongc6@michigan.org>, Bradford Orr <orr@umich.edu>, Steven Ceccio <ceccio@umich.edu>, Chris Kolb <kolbc@umich.edu>, Mashon Allen <mashonal@umich.edu>, overbeyc1@michigan.org, emersond1@michigan.org

Subject: Re: Project L 2-pager

Date: Fri, 27 Sep 2024 11:11:44 -0400

Importance: Normal

Hello All,

Apologies for the delay and we have answers on the infrastructure questions below.

Given the confidential nature of the project, we are unable to reach out to key partners at this point but have done some high level assessments.

If you have any follow-up questions we're more than happy to circle back with our folks to try to get more details.

Many thanks for all of your ongoing assistance,
Jen

1. What will be the usage and capacity requirements for the two facilities for Water, wastewater, electric, gas. For each, please indicate if existing infrastructure is adequate, and if not, what improvements are necessary, and how they will be funded?

2. Has there been a determination of adequacy of public road infrastructure (access and capacity) to accommodate the facilities? If so, who has made determination. Have local road officials and/or MDOT officials been consulted?

- The project is still confidential and we have not been able to engage with a traffic consultant or local road commission. The site has been assessed by the design team civil engineer and based on the FTE and truck

access it is anticipated that [REDACTED] will need to be widened between [REDACTED] and the main entrance to the site. Additionally, site access will need multiple curb cuts that will require further coordination with the road commission.

Genevieve Nolan

Deputy Treasurer

3003 S. State Street | 10090 Wolverine Tower | Ann Arbor, MI 48109-1283

gknolan@umich.edu | 734.647.4928

Pronouns: she/her



FINANCE
TREASURER'S OFFICE
UNIVERSITY OF MICHIGAN

This email was sent at a time that is convenient for me, but I do not expect you to read, respond or follow-up outside of your working hours

On Fri, Sep 27, 2024 at 9:49 AM Paul O'Connell (MEDC) <oconnellp2@michigan.org> wrote:

Thanks, Drew.

Paul O'Connell

Vice President Real Estate Development

Michigan Economic Development Corporation

300 N. Washington Square | Lansing, MI 48913

Cell: 517.290.1487 | Fax: 517.241.3060

oconnellp2@michigan.org

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Good morning, again.

Steve has asked that we turn an updated version of the 2-pager that builds the 100MW equipment spend (supported by federal appropriation), so that has been done in the attached Word doc. Reattaching the application (unchanged) so we can keep it all together.

Drew

--

W. Drew Smith

Assistant Vice President & Treasurer

University of Michigan

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Cc: "Paul O'Connell (MEDC)" <oconnellp2@michigan.org>, "Stacy Bowerman (MEDC)" <bowermans@michigan.org>, "whiteheadn@michigan.gov" <whiteheadn@michigan.gov>, "Kerry Ebersole (MEDC)" <ebersolek3@michigan.org>, "Steve Bakkal (MEDC)" <bakkals@michigan.org>, "Christin Armstrong (MEDC)" <armstrongc6@michigan.org>, Bradford Orr <orr@umich.edu>, Steven Ceccio <ceccio@umich.edu>, Chris Kolb <kolbc@umich.edu>, Mashon Allen <mashonal@umich.edu>, Genevieve Nolan <gknolan@umich.edu>

Subject: Re: Project L 2-pager

Date: Fri, 27 Sep 2024 09:44:28 -0400

Importance: Normal

Attachments: MEDC_2-pager.docx; SSRP_Application_Spreadsheet_Version.xlsx

Good morning, again.

Steve has asked that we turn an updated version of the 2-pager that builds the 100MW equipment spend (supported by federal appropriation), so that has been done in the attached Word doc. Reattaching the application (unchanged) so we can keep it all together.

Drew

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W. Drew Smith
Assistant Vice President & Treasurer
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3003 S. State Street, 10090 Wolverine Tower
Ann Arbor, Michigan 48109-1283

T: 734 764-3889 email: wdrews@umich.edu

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Thanks Drew.

Adding Steve and Christin to the loop.

Karl

Karl Dehn
Senior Business Projects Executive

Michigan Economic Development Corporation
300 N. Washington Square | Lansing, MI 48913
Mobile: 269.967.1696
dehnk@michigan.org

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Sent: Thursday, September 26, 2024 12:57 PM

To: Paul O'Connell (MEDC) <oconnellp2@michigan.org>; Stacy Bowerman (MEDC) <bowermans@michigan.org>; whiteheadn@michigan.gov; Kerry Ebersole (MEDC) <ebersolek3@michigan.org>; Karl Dehn (MEDC) <dehnk@michigan.org>

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Subject: Project L 2-pager

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Subject: Re: Project L 2-pager

Date: Fri, 27 Sep 2024 08:56:07 -0400

Importance: Normal

Attachments: MEDC_2-pager.docx; SSRP_Application_Spreadsheet_Version.xlsx

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Subject: RE: Project L 2-pager

Date: Fri, 27 Sep 2024 18:21:57 +0000

Importance: Normal

Attachments: DRAFT_University_of_Michigan_SSRP_Term_Sheet_11-12-2024.docx

Team,

I wanted to share the draft term sheet with you for discussion this afternoon.

Thanks,

Paul O'Connell

Vice President Real Estate Development

Michigan Economic Development Corporation

300 N. Washington Square | Lansing, MI 48913

Cell: 517.290.1487 | Fax: 517.241.3060

oconnellp2@michigan.org

From: Drew Smith <wdrews@umich.edu>

Sent: Friday, September 27, 2024 8:56 AM

To: Karl Dehn (MEDC) <dehnk@michigan.org>

Cc: Paul O'Connell (MEDC) <oconnellp2@michigan.org>; Stacy Bowerman (MEDC) <bowermans@michigan.org>; whiteheadn@michigan.gov; Kerry Ebersole (MEDC) <ebersolek3@michigan.org>; Steve Bakkal (MEDC) <bakkals@michigan.org>; Christin Armstrong (MEDC) <armstrongc6@michigan.org>; Bradford Orr <orr@umich.edu>; Steven Ceccio <ceccio@umich.edu>; Chris Kolb <kolbc@umich.edu>; Mashon Allen <mashonal@umich.edu>; Genevieve Nolan <gknolan@umich.edu>

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Karl

Karl Dehn
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Michigan Economic Development Corporation
300 N. Washington Square | Lansing, MI 48913
Mobile: 269.967.1696
dehnk@michigan.org

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Sent: Thursday, September 26, 2024 12:57 PM
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Subject: Re: Project L 2-pager

Date: Mon, 30 Sep 2024 09:36:17 -0400

Importance: Normal

Hi Karl,

Drew

--

W. Drew Smith
Assistant Vice President & Treasurer
University of Michigan
3003 S. State Street, 10090 Wolverine Tower
Ann Arbor, Michigan 48109-1283

T: 734 764-3889 email: wdrews@umich.edu

On Mon, Sep 30, 2024 at 9:30 AM Karl Dehn (MEDC) dehnk@michigan.org wrote:

Good morning Jen. Thank you for the information. One outstanding question is whether who is paying for the electrical/substation upgrades [REDACTED]? Or are some costs included in construction budget?

Thanks.

Karl

Karl Dehn

Senior Business Projects Executive

Michigan Economic Development Corporation

300 N. Washington Square | Lansing, MI 48913

Mobile: 269.967.1696

dehnk@michigan.org

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From: Genevieve Nolan <gknolan@umich.edu>

Sent: Friday, September 27, 2024 11:12 AM

To: Paul O'Connell (MEDC) <oconnellp2@michigan.org>

Cc: Drew Smith <wdrews@umich.edu>; Karl Dehn (MEDC) <dehnk@michigan.org>; Stacy Bowerman (MEDC) <bowermans@michigan.org>; whiteheadn@michigan.gov; Kerry Ebersole (MEDC) <ebersolek3@michigan.org>; Steve Bakka (MEDC) <bakkals@michigan.org>; Christin Armstrong (MEDC) <armstrongc6@michigan.org>; Bradford Orr <orr@umich.edu>; Steven Ceccio <ceccio@umich.edu>; Chris Kolb <kolbc@umich.edu>; Mashon Allen <mashonal@umich.edu>; Courtney Overbey (MEDC) <overbeyc1@michigan.org>; Danielle Emerson (MEDC) <emersond1@michigan.org>

Subject: Re: Project L 2-pager

Hello All,

Apologies for the delay and we have answers on the infrastructure questions below.

Given the confidential nature of the project, we are unable to reach out to key partners at this point but have done some high level assessments.

If you have any follow-up questions we're more than happy to circle back with our folks to try to get more details.

Many thanks for all of your ongoing assistance,

Jen

1. What will be the usage and capacity requirements for the two facilities for Water, wastewater, electric, gas. For each, please indicate if existing infrastructure is adequate, and if not, what improvements are necessary,

and how they will be funded?

2. Has there been a determination of adequacy of public road infrastructure (access and capacity) to accommodate the facilities? If so, who has made determination. Have local road officials and/or MDOT officials been consulted?

- The project is still confidential and we have not been able to engage with a traffic consultant or local road commission. The site has been assessed by the design team civil engineer and based on the FTE and truck access it is anticipated that [REDACTED] will need to be widened between [REDACTED] and the main entrance to the site. Additionally, site access will need multiple curb cuts that will require further coordination with the road commission.

Genevieve Nolan

Deputy Treasurer

3003 S. State Street | 10090 Wolverine Tower | Ann Arbor, MI 48109-1283

gknolan@umich.edu | 734.647.4928

Pronouns: she/her

This email was sent at a time that is convenient for me, but I do not expect you to read, respond or follow-up outside of your working hours

On Fri, Sep 27, 2024 at 9:49 AM Paul O'Connell (MEDC) <oconnellp2@michigan.org> wrote:

Thanks, Drew.

Paul O'Connell

Vice President Real Estate Development

Michigan Economic Development Corporation

300 N. Washington Square | Lansing, MI 48913

Cell: 517.290.1487 | Fax: 517.241.3060

oconnellp2@michigan.org

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Subject: Re: Project L 2-pager

Date: Fri, 27 Sep 2024 06:28:02 -0400

Importance: Normal

Attachments: SSRP_Application_Spreadsheet_Version.xlsx

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MICHIGAN ECONOMIC
DEVELOPMENT CORPORATION

October 27, 2023

Dr. Santa Ono
University of Michigan
1109 Geddes Avenue
Ann Arbor, MI 48109-1079

Dear Dr. Ono:

The Michigan Economic Development Corporation (MEDC), on behalf of the State of Michigan, is excited to commit up to \$400 million in state support through bonding and other state programs, including, but not limited to, the Make it in Michigan Competitiveness Fund, for the establishment of a new U.S. Department of Energy Supercomputing National Laboratory, led by Los Alamos National Laboratory (LANL), to be located on the campus of the American Center for Mobility in Ypsilanti Township, in conjunction with the University of Michigan (UM).

This transformational project will not only have a substantial, direct economic impact on the region and the state, but will also be a magnet for future industry, government, and academic investment, will serve the local innovation ecosystem, and will have a profound impact on student and workforce development opportunities.

With the National Vehicle and Fuel Emissions Laboratory in nearby Plymouth, the state's collaboration with UM and Argonne National Laboratory in the area of advanced battery development which, in part, led to the creation of the UM Battery Laboratory, longstanding partnership with Oak Ridge National Laboratory on advanced manufacturing research in composite materials, additive manufacturing and battery materials, and the recent launch of the Facility for Rare Isotope Beams, an internationally recognized DOE user facility located on the campus of Michigan State University, Michigan has a long history of hosting, and partnering with, federal laboratories to advance innovation in areas critical to national security and innovation leadership. This new laboratory will be another crown jewel demonstrating Michigan's leadership in innovation, built on the strength of our highly skilled workforce.

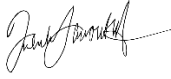
This financial commitment is contingent on agreed upon job creation, investment, federal re-investment, industry and state access and utilization (non-classified areas), and a minimum 25% match from the University of Michigan. Funding is dependent on availability of funds through the legislative budget process and contingent on the ability of this opportunity to meet state program requirements, and approval processes. In addition to the financial commitment, the MEDC will act as a state concierge to connect LANL and the lab to other state agencies, service providers, and executive, state legislative, and federal delegations as required.

The State recognizes this once in a lifetime opportunity for a uniquely important asset that will pay shared dividends for years to come. We look forward to partnering with the University of



Michigan and Los Alamos National Laboratory to move this generational project forward. Should you have any questions or require further information, please feel free to contact me at messerq@michigan.org or 517-881-5861.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Quentin L. Messer, Jr.", with a stylized flourish at the end.

Quentin L. Messer, Jr.
Chief Executive Officer, Michigan Economic Development Corporation

cc: Rachael Eubanks, Treasurer, State of Michigan
Jennifer Nelson, Chief Operating Officer, Michigan Economic Development Corporation
Steve Bakka, Chief Strategist, Michigan Economic Development Corporation
Chris Kolb, Vice President for Government Relations, University of Michigan



MICHIGAN ECONOMIC
DEVELOPMENT CORPORATION

PURE *M*ICHIGAN®

NATIONAL RESEARCH LAB

Fiscal Impact Estimates

October 12, 2023

PROJECT ASSUMPTIONS

Assumptions from Information Provided	Low Job Creation Assumptions	Mid Job Creation Assumptions	High Job Creation Assumptions
Total Investment (\$m)	\$835	\$835	\$835
Total Job creation	540	790	1,040
Average Annual Wage	\$100,000	\$125,000	\$100,000
Total M&E Upgrades Investment (\$m)*	\$600	\$600	\$600
Construction period	2026 - 2029	2026 - 2029	2026 - 2029
Other Assumptions			
Industry Modeled	541511 (Custom Computer Programming Services)	541511 (Custom Computer Programming Services)	541511 (Custom Computer Programming Services)
Fringe benefits	20%	20%	20%
Salary Increase YOY	3.5%	3.5%	3.5%
Jobs Ramp-Up (even distribution)	2030 - 2034	2030 - 2034	2030 - 2034
Total Time Span	20 years (2026 - 2045)	20 years (2026 - 2045)	20 years (2026 - 2045)

* \$200M machinery and equipment upgrades every 5 years post-construction

LOW JOB CREATION ESTIMATES

	5 years	10 years	15 years	20 years
Outputs	2026 - 2030	2026 - 2035	2026 - 2040	2026 - 2045
Average Total Jobs (cumulative)*	2,079	1,522	1,500	1,488
Average Jobs Multiplier	n/a	n/a	n/a	2.7
Total Personal Income (current \$\$)	\$906,865,000	\$1,621,122,000	\$2,846,256,000	\$4,342,105,000
Total State Tax Revenue (current \$\$)	\$59,302,968	\$102,302,037	\$176,172,191	\$264,164,549
State Tax Revenue via Direct Jobs (current \$\$)	\$1,161,073	\$19,212,200	\$49,439,093	\$85,339,161

*includes construction jobs

Source: Remi model, 2023; UM tax calculator

MID JOB CREATION ESTIMATES

	5 years	10 years	15 years	20 years
Outputs	2026 - 2030	2026 - 2035	2026 - 2040	2026 - 2045
Average Total Jobs (cumulative)*	2,116	1,902	2,018	2,068
Average Jobs Multiplier	n/a	n/a	n/a	2.8
Total Personal Income (current \$\$)	\$930,986,000	\$2,184,449,000	\$4,201,519,000	\$6,642,644,000
Total State Tax Revenue (current \$\$)	\$60,945,462	\$139,514,754	\$263,040,314	\$408,460,542
State Tax Revenue via Direct Jobs (current \$\$)	\$2,066,987	\$37,947,963	\$93,223,996	\$158,874,582

*includes construction jobs

Source: Remi model, 2023; UM tax calculator

HIGH JOB CREATION ESTIMATES

	5 years	10 years	15 years	20 years
Outputs	2026 - 2030	2026 - 2035	2026 - 2040	2026 - 2045
Average Total Jobs (cumulative)*	2,129	2,075	2,299	2,402
Average Jobs Multiplier	n/a	n/a	n/a	2.6
Total Personal Income (current \$\$)	\$932,867,000	\$2,312,876,000	\$4,606,585,000	\$7,397,844,000
Total State Tax Revenue (current \$\$)	\$61,076,652	\$147,823,744	\$287,893,441	\$453,032,566
State Tax Revenue via Direct Jobs (current \$\$)	\$2,010,240	\$39,138,599	\$97,353,357	\$166,494,228

*includes construction jobs

Source: Remi model, 2023; UM tax calculator

UM Project Opportunity

- DOE Supercomputing National Lab location
- 500-1,000 new jobs
- Average wages ~\$100,000
- ~\$835M investment
- Competing locations: GA and TX
- DOD will invest \$250M in equipment every 3-5 years
- UM ASK: commitment letter from the State by 11/1/2023 for up to \$500M
- Recommendation: Up to \$400M in State support (bonding and Make it in Michigan/competitiveness fund) contingent on jobs, investment, federal re-investment, industry and SOM utilization—non-classified areas, minimum 25% match from UM.

Strategic Site Readiness Program

Site Name & Address

Site Acreage

Has an End User been identified

Yes/No

Below 1,000 acres (Go to Strategic Site Tabs)

1,000 acres or more (Mega Site Path)

If yes follow End User Identified path

The Strategic Site Readiness Program (SSRP) provides financial incentives to Eligible Applicants to conduct Eligible Activities on, or related to, Strategic Sites, Mega-Strategic Sites and Landfill Sites in Michigan, for the purpose of creating a state-wide inventory of investment-ready sites to attract and promote investment in Michigan. Administered by the Michigan Economic Development Corporation (MEDC) on behalf of the Michigan Strategic Fund (MSF), this tool provides access to grants, loans, and other economic assistance to Eligible Applicants, who may enter into sub-contract agreements to expedite the implementation of improvements are other Eligible Activities.

		Needed (Y/N)	Cost to Complete	Grantee/Other Match
Land acquisition and assembly	N			
Site preparation and improvement	Y		\$15,000,000	
Infrastructure improvements that directly benefit the site, including but not limited to, transportation/roads; infrastructure, water and wastewater infrastructure, water quality analysis (groundwater) and utilities necessary to service the site	Y		\$20,000,000	
Any demolition, construction, alteration, rehabilitation, or improvement of buildings on the site	Y		\$66,000,000	
Threatened & Endangered Species Assessment	Y		\$200,000	
Geotechnical Soil Boring Report, Phase 1 Environmental Assessment, Environmental remediation	Y		\$300,000	
Wetland survey, wetland delineation, wetland mitigation	Y		\$200,000	
Site Topography, ALTA Survey, FEMA Flood Zone Map	Y		\$300,000	
Architectural and cultural report, engineering, surveying, and similar professional fees	Y		\$33,000,000	
Spending plan and proposal for capital investment for site readiness				
Total Request			\$ 135,000,000.00	\$ -

Site Readiness

Do you have a detailed plan for how the requested funds will be used to advance a site(s) to an investment ready status?

Yes

Have you pursued cost containment measures?

The project has prepared preliminary cost estimates and will update them at the completion of each design phase to assess budget conformance. At the end of each design phase, the design team will also complete a value engineering exercise to identify savings opportunities.

Speed to Market

Upon completion of the grant, if awarded, will the site demonstrate a high level of competitiveness for business attraction (status of assemblage, site control, and status of site readiness)?

Yes. A tenant has already been identified. We are hopeful that we will have a lease agreement signed by the time the grant is completed, but it may take longer. Regardless, construction should be well underway before the grant is completed. We expect that aside from the tenant it will attract, additional businesses dealing with classified matters will gravitate toward the area as well as significant numbers of researchers which will be, in part, supported by the facility.

Investment

What is public investment into the site or project?

It is anticipated \$400MM will come from the state and an additional \$217MM will come from U-M for the 10MW side of the facility. Additionally, U-M intends to advance certain moneys (for which it will later be reimbursed) to facilitate continued work on the site.

What is the private investment into the site or project?

National Lab will ultimately cover the net construction costs of the 100MW site (\$685-\$400=**\$285MM**).

What is the overall return on investment to the state?

It is expected that over the next 10 years, 800 researchers with average total compensation of \$300k/person (\$200k base comp) will be hired in the area. Return is incremental state tax revenue and additional sales tax revenue.

Have you secured other economic assistance or is there support from the federal government for the project? If so, what is the amount?

National Lab has informally committed to \$285MM in net construction costs. Ongoing operating costs (not including construction net debt service) are estimated at \$78MM annually, with such costs consisting of electricity, water, building maintenance, operating costs, etc.

Have you received any other economic assistance from the State? If so, what is the amount?

It is anticipated that the state will commit an additional \$265MM through a combination of GF appropriation, capital outlay, and bond proceeds.

What is the degree of local matching contribution?

U-M expects to match total project costs at at least 25%. This will consist of the construction of the 10MW site and associated equipment.

What is the level of end user's commitment to the project?

The National Lab will pay net construction costs of \$285MM plus ongoing operational costs indefinitely, which are estimated at \$78MM annually (not including construction debt svc)

Talent Jobs and Wages

What is the projected level of creation or retention of qualified jobs as a result of a technological shift in product or production at the project location and within the state?

The National Lab estimates the creation of 800 jobs in Michigan over the next 10 years, with the largest components of that creation coming when the facility is placed in service.

Will the projected wages equal or exceeded the average wage for the county in which the project is located?

With total average annual compensation estimated at \$300,000 and average base compensation at \$200,000, the new jobs created are expected to significantly exceed the average wage for Washtenaw County.

Regional and Community Support and Impact

Explain the extent to which there is regional and local support for the project, including the strategic importance of the project to the community.

The project has significant regional and local support as evidenced by the preferred site being in Ypsilanti, MI. The selection of this site involves coordination with DTE Energy, ensuring the availability of critical infrastructure such as electrical and water services. The partnership between the University of Michigan (U-M) and the National Lab underscores the strategic importance; it will not only house advanced HPC capabilities but will also foster collaborative research and workforce development, thus benefiting the local community by enhancing educational opportunities and positioning the area as a leader in high-performance computing.

Is the site supported by a strategic or other plan addressing business attraction and investment in the region?

The site aligns with strategic plans designed to attract business and investment in the region. U-M has coordinated efforts with DTE Energy to confirm existing and scalable infrastructure capacity, underscoring a proactive approach to support the project. This includes securing necessary utilities and ensuring that the location is favorable regarding schedule and construction costs, which are critical considerations for attracting high-value research and business activities to the area. It aligns with the University of Michigan's strategic plan for Vision 2030 and the creation of an innovation center.

Explain the degree to which the project is a priority for the local government or economic development organization (EDO).

The project includes plans to accommodate up to 100 National Lab employees, which can stimulate local employment and economic activity.

Significant investment in large infrastructure projects like a 100MW facility and a 10MW facility can lead to additional job opportunities in construction, maintenance, and operations.

This project could further enhance Southeast Michigan as a hub for high-tech industries and innovation, attracting other start-ups or high-tech businesses who may be a potential tenant or collaborator. This project also promises enhanced educational opportunities, joint workforce development programs, and research initiatives, which can improve local academic environments and skill levels. This project maintains an emphasis on grid reliability, water security, and a mild climate suitable for cooling the computing equipment in the facility underlines the project's aim to create sustainable and resilient infrastructure to serve national interests.

By leveraging Southeast Michigan's affordability and quality of life, the project aims to create a highly attractive locale for prospective employees and their families, enhancing the region's overall standard of living.

Explain the importance of the project in the community it is located and the extent to which it will be a catalyst for additional revitalization of the community.

By establishing a state-of-the-art innovation center, the region can attract additional investments in research and development. The proposed facilities will create job opportunities, support local businesses, and improve the quality of life by providing educational and collaborative research opportunities. As we train students, we will be in a position to retain top talent in Michigan through research positions while meeting the needs and goals of the National Lab.

Competition

Is the project competing with other states and is the SSRP part of the incentive package?

Yes. While we are the indicative winner, that is subject to receipt of \$400MM in state assistance.

Sustainable Development, Blight Elimination and Historical Reuse

Explain how the project promotes sustainable development.

The project has a minimum LEED certification goal of LEED Silver with a stretch goal of LEED Gold under LEED v4 for New Construction. The project will employ integrated design principles to ensure energy efficiency, water conservation, occupant comfort, and minimal environmental impact to the project site. In keeping with the University's carbon neutrality goals, the project will be all-electric. The building's design and systems include several energy-efficient features to achieve better than 20% energy savings compared with an energy-code-compliant building as defined by ASHRAE 90.1-2013. Low-flow plumbing fixtures will reduce water consumption by 20% beyond the Michigan Plumbing Code requirements. The project will purchase ENERGY STAR equipment and construction waste will be diverted from landfills whenever possible.

Will the proposed investment result in the elimination of blight and the redevelopment of blighted properties?

Not applicable

Will the proposed investment result in the remediation of environmental contamination?

A Phase I Environmental Site Assessment was conducted that identified recognized environmental conditions. Therefore, a Phase II assessment is planned. If non-hazardous, contaminated soils and/or groundwater are identified above Part 201 criteria then the management of contaminated materials and the site development will be in accordance with Part 201 due care requirements.

Will the reuse of vacant buildings, public or private, or the conversion of any abandoned public buildings to private use be included in the project?

No

Does the project involve the rehabilitation of a historical use?

No

Will the funds, if awarded, address the necessary site improvements specifically pertaining to environmental and topographical conditions?

Yes

State-wide Impact and Geographic Equity in Funding Distribution

Does the project address state-wide development and/or address underserved markets of commerce?

No

Will the funds, if awarded, promote geographic equity in the distribution of funds between different areas of the state?

No